

Amendments to the Claims

Please amend Claims 15 and 16. The Claim Listing below will replace all prior versions of the claims in the application.

Claim Listing

1. (Original) A method for operating a Redundant Array of Inexpensive Disks (RAID) to recover from read errors comprising:
in a disk controller,
detecting that a read error has occurred in a sector associated with a particular Logical Block Address (LBA_i) in a primary disk portion;
reporting an unrecoverable read error at LBA_i ;
remapping the sector originally associated with the LBA_i for which the read error occurred to a replacement sector;
in a RAID controller,
receiving a report of an unrecoverable read error at LBA_i ;
retrieving data from a mirror disk portion associated with the primary disk portion that contains LBA_i; and
writing the same data thereby retrieved to the LBA_i on the primary disk portion for which the error was specified.
2. (Original) A method as in claim 1 additionally comprising the step of:
reading the data back from LBA_i on the primary portion; and
if the data is read back from LBA_i without a further read error, not activating the mirror disk portion.
3. (Original) A method as in claim 1 wherein the mirror disk portion is located at LBA_{i+k} in a physical disk drive that is different from the physical disk drive on which LBA_i is stored.

4. (Original) A method as in claim 1 additionally comprising:
 - in the RAID controller,
 - after detecting the unrecoverable read error,
 - executing a background process to regenerate the contents of the primary disk section that contains LBA_i .
5. (Original) A method as in claim 1 additionally comprising:
 - if the step of writing the same data retrieved from the mirror fails, then replacing the primary disk section that contains LBA_i .
6. (Original) A method as in claim 1 additionally comprising:
 - if the step of writing the same data retrieved from the mirror succeeds, then not activating a mirror portion for LBA_i .
7. (Original) A method as in claim 1 wherein the disk controller is located in a common assembly with disk hardware.
8. (Original) A method as in claim 1 wherein the RAID controller is located in a processor that is a separate assembly from the disk hardware.
9. (Original) An apparatus for operating a Redundant Array of Inexpensive Disks (RAID) to recover from read errors comprising:
 - a disk controller, connected to a primary disk portion, the disk controller for detecting that a read error has occurred in a sector associated with a particular Logical Block Address (LBA_i) in a primary disk portion, and in response thereto, reporting an unrecoverable read error at LBA_i , and further for remapping the sector originally associated with the LBA_i for which the read error occurred to a replacement sector;
 - a RAID controller, connected to the disk controller, and for receiving the report of an unrecoverable read error at LBA_i therefrom, and in response thereto, for retrieving data from a mirror disk portion associated with the primary disk portion that contains

LBA_i, and then writing the same data thereby retrieved to the LBA_i on the primary disk portion for which the error was specified.

10. (Original) An apparatus as in claim 9 wherein the RAID controller is additionally for reading the data back from LBA_i on the primary portion, and for preventing activation of the mirror disk portion if the data is read back from LBA_i without a further read error.
11. (Original) An apparatus as in claim 9 wherein the mirror disk portion is located at LBA_{i+k} in a physical disk drive that is different from the physical disk drive on which LBA_i is stored.
12. (Original) An apparatus as in claim 9 wherein the RAID controller, after detecting the unrecoverable read error, additionally executes a background process to regenerate the contents of the primary disk section that contains LBA_i.
13. (Original) An apparatus as in claim 9 wherein if writing the same data retrieved from the mirror fails, then the RAID controller replaces the primary disk section that contains LBA_i.
14. (Original) An apparatus as in claim 9 wherein if writing the same data retrieved from the mirror succeeds, then the RAID controller does not activate a mirror portion for LBA_i.
15. (Currently Amended) An apparatus as in claim 4 9 wherein the disk controller is located in a common assembly with disk hardware.
16. (Currently Amended) An apparatus as in claim 4 9 wherein the RAID controller is located in a processor that is a separate assembly from the disk hardware.